*J.N*

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| 09/075,666 | 05/11/98 | KONDO          T | 450100-2780. |

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| ART UNIT | PAPER NUMBER |
|---|---|
| 2723 | 4 |

DATE MAILED: 05/26/99

**Please find below and/or attached an Office communication concerning this application or proceeding.**

Commissioner of Patents and Trademarks

☒ Responsive to communication(s) filed on *May 11, 1998* _____.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire ___*three*___ month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

**Disposition of Claims**

☒ Claim(s) *1-38* _____ is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) *1-14* _____ is/are allowed.

☒ Claim(s) *15-38* _____ is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

**Application Papers**

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

   ☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

      ☐ received.

      ☒ received in Application No. (Series Code/Serial Number) ___*08/061,730*___ .

      ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   *Certified copies not received: _____ .

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 .

☐ Notice of Informal Patent Application, PTO-152

--- *SEE OFFICE ACTION ON THE FOLLOWING PAGES* ---

# DETAILED ACTION

## *Reissue Applications*

1.      The original patent, or an affidavit or declaration as to loss or inaccessibility of the original

patent, must be received before this reissue application can be allowed.  See 37 CFR 1.178.

## *Claim Rejections - 35 USC § 112*

2.      Claims 15-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

3.      Each of independent claims 15, 19, 23, 27, 30, 33 and 36 contains the language

"*clustering in accordance with* a plurality of pixel data of said first digital image signal adjacent to

a pixel data of said second digital image signal to produce a class" (emphasis added).  This phrase

is vague and unclear as *what* is being clustered is not stated.

4.      Also in claim 33, the line in the third clause stating "said class using to retrieve a class data

to generate a plurality of pixel data..." is unclear and seems to be incomplete.

5.      Claims not specifically mentioned depend from rejected antecedent claims.

### *Claim Rejections - 35 USC § 102*

6.      The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

7.      The following rejections are based on the best understanding of the claim language possible in view of the confusion regarding the "clustering" step noted above.

8.      Claims 15, 19, 22, 33, 35-36 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Kanno et al. (US 5,229,868).

9.      As to claims 15 and 33, Kanno discloses a digital signal conversion apparatus (figures 1 and 4) which includes:

-a memory for storing class data for respective classes at addresses associated with at least a training digital image signal (figure 11, items 3 and 9). The training image signal has a high resolution component (see column 1, lines 35-45);

-means for receiving first digital image signal including pixel data (figure 11, item 4);

-means for clustering (figure 12, item 19 clusters input signal into a class designated by r1-r16) pixel data in accordance with adjacent pixel data of the second digital image signal (e.g., r6 and r7 are adjacent to h1) to produce a class;

-means for retrieving class data from one of the addresses of the memory corresponding to

the class of the first digital image signal (the class r1-r16 is used to address the memory to retrieve

the class data h1-h3; figure 3); and

-means for generating all pixel data representing pixel values of the second digital image

signal based upon at least the retrieved class data (figure 11, item 7). See column 4, lines 32-41.

10.     Claims 19 and 36 recite a method which generally corresponds to the apparatus of claims

15 and 19 and are rejected on the same grounds.

11.     As to claims 22, 35 and 38, Kanno teaches that the class data stored in memory

corresponds to pixel data representing the second standard (i.e., higher resolution; see figure 2,

h1-h3) and the means for generating generates pixel data representing the second image signal by

providing the retrieved class data as pixel data representing pixel values.   See column 4, lines 38-

41.

### Claim Rejections - 35 USC § 103

12.     The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

13.     Claims 17 and 21, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanno

et al. (US 5,229,868).

14.     Kanno does not teach the use of an orthogonal decoding to provide the input digital

signal. Kanno does teach that the image processing system is intended to be used with facsimile

communication (column 1, lines 1-25). It is common in the art to transmit facsimile digital signals

using orthogonal coding (the Examiner takes official notice of this fact). It would have been

obvious to one of ordinary skill in the art, to include an orthogonal decoder in the image input

device because Kanno et al. teaches that the system is to be used in the facsimile environment

which commonly includes such encoding of digital signals.

15.     Claims 18, 23, 25, 26, 27, 29, 30, 32, are rejected under 35 U.S.C. 103(a) as being

unpatentable over Kanno et al. (US 5,229,868) and further in view of Collins (US 4,587,556).

16.     To the extent that these claims mirror the language of claims 15, 19, 33 and 36 above,

Kanno applies as already discussed above.

17.     As to claims 23, 27 and 30, Kanno does not specifically deal with standard and high

definition *video* signals. However, conversion from a standard (i.e., lower) definition video signal

standard (i.e., NTSC at 525 lines/field) to a higher definition video signal standard (i.e., PAL at

625 lines/field) is well known in the art. Collins, for example, discloses a system and method for

performing this function. See figures 2, 4 and 5 as well as the Abstract and column 5, lines 19-27.

Given the fact that using interpolation to convert between video signals is well known, it would

have been obvious to one of ordinary skill in the art to utilize the specific interpolation processes

taught by Kanno for converting *video* signals in order to obtain the image quality advantages that

reference teaches (by using learning image data, etc.) when converting a video signal. Note

additionally that, although Kanno does not discuss video signals, the possibility of interpolating

video data in the same way is not excluded since the mechanics of interpolating a single still-frame

image such as in Kanno would not, in principle, be different from interpolating a single frame of a

continuous stream of video data.

18.     As to claim 25, Kanno teaches that the class data stored in memory corresponds to pixel

data representing the second standard (i.e., higher resolution; see figure 2, h1-h3) and the means

for generating generates pixel data representing the second image signal by providing the

retrieved class data as pixel data representing pixel values.   See column 4, lines 38-41.

19.     Claims 18, 29 and 32 recite generally similar limitations and are rejected on the same

ground as applied to claim 25 above.

20.     As to claim 26, Kanno teaches means for generating the class data (column 5, lines 9-19).


21.     Claims 16,  20, 34 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kanno et al. (US 5,229,868) and further in view of Tararine et al. (US 5,048,102).

22.     As applied to claims 15, 19, 33 and 36 above, Kanno does not teach that the class data is

coefficient data and the means for generating the second image data operates in accordance with

the coefficient data.  Kanno teaches data conversion using stored interpolated values which have

already been computed.  Tararine et al. teaches that these two methods are equivalents in the art

(column 7, line 15 through column 8, line 7).  It would have been obvious to one of ordinary skill

in the art to replace the direct accessing of the interpolation data taught by Kanno et al. with a method that computes the interpolation data from weights or coefficients. Because Tararine et al teaches that these methods are equivalents, use of one or the other would have been an obvious and routine substitution dictated by constraints or requirements of a particular designer.

23. Claims 24, 28, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanno et al. (US 5,229,868) and Collins (US 4,587,556) as applied to claim 23 above, and further in view of Tararine et al. (US 5,048,102).

24. Kanno does not teach that the class data is coefficient data and the means for generating the second image data operates in accordance with the coefficient data. Kanno teaches data conversion using stored interpolated values which have already been computed. Tararine et al. teaches that these two methods are equivalents in the art (column 7, line 15 through column 8, line 7). It would have been obvious to one of ordinary skill in the art to replace the direct accessing of the interpolation data taught by Kanno et al. with a method that computes the interpolation data from weights or coefficients. Because Tararine et al teaches that these methods are equivalents, use of one or the other would have been an obvious and routine substitution dictated by constraints or requirements of a particular designer.

## *Allowable Subject Matter*

25. Claims 1-14 are allowable over the prior art of record.

26. None of the prior art of record discloses the limitation of "generating a plurality of interpolated data . . ., in which a position of at least one of said clustered pixel data of said standard definition digital video signal is spatially located at the same position of at least one of said generated interpolated data" as required by claims 1 and 5 (and similarly in claims 9, 13 and 14). As the Applicant has previously argued, these claims pertain to the embodiments described at page 12, line 13 to page 15, line 9 of the original specification and in figures 5-7. The prior art specifically generates interpolated pixels only for spatial locations *between* those corresponding to pixels in the original image. In contrast, the claimed invention outputs interpolated pixels for spatial locations corresponding to the original pixels as well as intermediate locations. This feature is most clearly shown in figure 6 of the application.

Art Unit: 2723

## *Contact Information*

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Larry J. Prikockis, who can be reached at (703) 305-4791.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Amelia Au, can be reached at (703) 308-6604.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

The Art Unit FAX number is (703) 308-5397.

LJP

May 21, 1999

Amelia Au
Supervisory Patent Examiner
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